development of the group and on the anatomy of Doris and of Æolidia; whilst the questions of classification, affinities, and descriptions of species occupy the latter half of the work. On these sections, the author's intimate knowledge of his subject confers a philosophic caution and breadth of treatment. Attention may be directed especially to the discussion of the relations existing between nudibranch and tectibranch mollusca (pp 89–92), and to the descriptions of fifteen species not described in the monograph. Malacologists are under a great debt to Sir Charles for this fine work, which is worthy of the classic that it supplements. F. W. G.

WILD FLOWERS.

Wild Flowers of the British Isles. Illustrated and written by H. Isabel Adams. Revised by James E. Bagnall. Vol. ii., order xlii., Campanulaceæ to order lxxxvi., Araceæ, completing the British Wild Flowers with the exception of Water Plants and Trees. Pp. xi+199. (London: W. Heinemann, 1910.) Price 30*s.* net.

THE talented author of the volume under review has made the fatal mistake of attempting to serve two masters, and with the inevitable result. From the artistic point of view the plates are for the most part very good, and they combine accuracy of detail with beauty of arrangement. No doubt they have suffered somewhat in the process of reproduction by the three-colour process, especially as regards the green tints, but the original drawings must be excellent. An attempt has been made to produce a British flora of an up-to-date character, based on the last edition (10th) of the London catalogue, and also to produce an illustrated flora. The work before us is incomplete from both points of view.

As a flora the omission of trees, referred to on the title-page, is a great mistake, but the complete neglect of Juncaceæ, Cyperaceæ, Gramineæ, and other monocotyledonous natural orders, without a word of explanation, deprives the book of any real scientific value. "Water plants" are also said to be excepted, as well as trees, but the definition of a water plant adopted by the writer must be individual and peculiar since *Hottonia palustris, Nymphoides (Villarsia) peltatum, Lobelia Dortmanna,* and others are not only included but illustrated. It is not easy to suggest any reason for the omission of other natural orders not specifically referred to, such as Elæagnaceæ and Loranthaceæ. There can be no question that both sea buckthorn and mistletoe are "wild flowers of the British Isles"; the former might be ruled out of court as a tree, but its claim to inclusion is a strong one when the non-British *Lycium chinense* forms the subject of a well-executed drawing. The common privet, too, is scarcely a tree. Plantains also, wild flowers *par excellence* and decorative also, fail to find a place in the volume, and one is tempted to conclude that certain plants do not find favour with the writer. It is not a case apparently of the weakest going to the wall or of suffering minorities, since other natural orders with only one or two genera are to be found in their proper place.

The descriptions of the various species are on the whole well drawn up, and some interesting general information is given under each natural order. An attempt is made in some orders to make a slight key to the genera and species, but unfortunately for the unlearned student the keys are not very helpful. In the Labiatæ, for instance, the contrasted heads of the key have no logical sequence. They run as follows:—

Corolla, 2-lipped, and usually 5-lobed.
Stamens 4, 2 outer longer.
Stamens 4; calyx-tube with 10–13 ribs.
Calyx 2-lipped, closed in fruit; stamens included in upper corolla-lip.
Corolla bell-shaped, with 4 nearly equal lobes; calyx with 5 equal teeth.

There appears to be no reason from such a key why one genus should be placed under one heading rather than under another.

Enough has been said to show that this book cannot rank as a valuable contribution to the science of botany, and it is all the more to be regretted when the excellence of the drawings is considered. Although in some of the plates there is unnecessary crowding, yet the draughtsmanship throughout is of a high order, and the plates of Convolvulus and *Tamus communis,* to mention two only, are beautiful works of art. A complete series of plant pictures of our British flora by Mrs. Adams would be of considerable value, and it is a matter for regret that so much skill and labour should have been expended on a book so pretentious and incomplete, which, with all its accuracy of drawing, unfortunately can only be regarded as a work for the drawing-room table.

SHALLOW-WATER STARFISHES.

Echinoderma of the Indian Museum. By Prof. Rene Koehler. Part vi., Asteroidea (ii). An Account of the Shallow-water Asteroidea. Pp. 191+xx plates. (Calcutta: Printed by order of the Trustees of the Indian Museum.) Price 20 rupees.

IN this carefully executed and copiously illustrated memoir the starfishes of the Indian littoral are for the first time regimented, from material collected, between the Persian Gulf and the Malay Peninsula, during thirty years of steady work, by the Royal Indian marine survey-ship *Investigator,* supplemented by local contributions from the recently commissioned Bengal Government Fisheries' steamer, *Golden Crown.*

Sixty-seven species are enumerated, of which twenty-eight are described as new. Among the novelties, though there is nothing very surprising, the species of Astropecten, Anthenea, Goniodiscus, Nardoa, Luidia, and Ophidiaster predominate.

Of old-established species several that were insufficiently characterised by their authors, or that have never been figured, are here re-described with infinite care, or interpreted by wonderfully lucid photographs, according to the requirements of each case, the author having taken the trouble to rivet attention on nothing less authentic than the very "types." This method of work, together with the fact that certain genera—

particularly the by no means easy genus Pentaceros—are practically revised, within set geographical limits, adds enormously to the value of this conscientious monograph.

Though the work is for the most part descriptive—almost commendably so in an age of easy speculation—the author takes pains to set all his species in their due relations. Of *Palmipes sarasini* he observes that its differences from its congeners are almost of generic value, and of Valvaster that its peculiarities are almost sufficiently exclusive to give it rank as an independent family. He also discusses the position of the irreconcilable genus Metrodira, which he has no hesitation in establishing among the Linckiidæ. Nor has he forgotten to notice the small parasitic mollusca found on species of Stellaster and Palmipes.

This is Prof. Koehler's sixth memoir of the fine collection of Echinoderms of the Indian Museum, and, as India is still *meta incognita* so far as the Echinoidea are concerned, we trust that it is not the last.

One criticism, however, may be offered of this memoir, as of its precursors of the series, namely, that it is too exclusively addressed to the specialist. Species are examined and described with acumen, but there are none of those synoptical tables, of educational value, which the student has almost a right to expect in a museum publication that treats in its entirety one large component of a fauna. If the author would crown his labours in this field by publishing synopses of the families, genera, and species of Indian Echinoderma, he would "thereby highly oblige" many to whom, though they are not experts, whatsoever passeth through the paths of the seas is of interest.

EXPERIMENTAL ELECTRICITY AND MAGNETISM.

(1) *Practical Electrical Engineering for Elementary Students: An Elementary Laboratory Course for Students of Electrical Engineering in Trade and Technical Schools.* By W. S. Ibbetson. Pp. xii+155. (London: E. and F. N. Spon, Ltd.; New York: Spon and Chamberlain, 1910.) Price 3*s.* 6*d.* net.

(2) *Practical Electricity and Magnetism: A First Year's Course.* By R. Elliott Steel. Pp. viii+175. (London: G. Bell and Sons, Ltd., 1910.) Price 2*s.*

(3) *Elementary Experimental Electricity and Magnetism.* By W. T. Clough. Pp. viii+255. (London: Methuen and Co., Ltd., 1910.) Price 2*s.* 6*d.*

THE first two books are intended to cover first-year laboratory courses, in the one case for technical students, in the other for beginners in science at a school or college. The usual differences are to be noted between them, the second being far more theoretical than the first, and also containing sections on magnetism and electrostatics, which the other does not touch.

(1) The system employed by Mr. Ibbetson is excellent, and could with advantage be adopted in any technical schools in which a similar scheme is not already in operation. It is perhaps to be regretted that no experiments with magnets are included, unless the student is intended to have taken a preliminary course in electricity and magnetism under the heading of physics.

Slight alterations in the experiments will have to be introduced in different laboratories to suit diverse conditions, as the book has evidently been written to fit the apparatus employed in one particular school. This defect shows itself most prominently in the too narrow specification of the instruments to be used in the experiments, instead of general advice to enable students to select instruments and resistances suitable in their range and capacity.

The connection diagrams are, on the whole, very good, the boldness of their drawing being a valuable feature. They could be improved, however, especially in the cases of more complicated experiments, by simplification of the drawings of instruments and switches and the avoidance of cross-overs wherever possible.

In experiment xxxv. the use of a standard resistance in connection with the calibration of a voltmeter seems quite unnecessary, and confuses the experiment with the calibration of an amperemeter.

"Shunt dynamo, separately excited," is a very contradictory term, which appears on p. 144; moreover, the experiment can be performed just as well with a generator with a low-resistance field winding.

The complete lack of any reference to the error due to the voltmeter current when measuring resistance by the ammeter-voltmeter method is a serious defect. When measuring efficiency in the photometry experiment, the connections are made so as to avoid this error, but no reason is given. On the whole, however, the experiments are detailed with the care and exactness so essential when dealing with elementary classes.

(2) Mr. Steel's book contains instructions for carrying out a great many experiments, but the language is hardly concise enough for scientific work. The use of supply mains and accumulators is avoided, which renders the book suitable for some few laboratories but unsuitable for many others. The comparative absence of diagrams of connections is a great drawback, and the few which appear are not good examples for students to copy from.

(3) Mr. Clough's book is intended to act as a theoretical text-book, as well as a practical guide in the laboratory, for students preparing for the elementary examinations in the subject.

Magnetism and statical electricity together occupy the first one hundred and fifty pages of the book, and voltaic electricity the remaining one hundred. Voltaic work is explained from a statical point of view in a method somewhat unusual at the present day.

The diagrams and illustrations are plentiful, and the type is varied so as to call into prominence the most important passages. Numerous exercises are given, chiefly drawn from recent examination papers, which should be very helpful for intending candidates.

A few omissions are noticeable, *e.g.* no reference is made to the moving-coil type of galvanometer, which is more frequently used than the suspended-magnet type.